

Linzer biol. Beitr.	47/1	925-937	31.7.2015
---------------------	------	---------	-----------

A Contribution to the Fauna of Fruit Flies (Diptera, Tephritidae) in Fars Province, Southern Iran

Zohreh SOLTANIZADEH, Nazila SAGHAEI & Hadi OSTOVAN

A b s t r a c t : The tephritid fauna (Diptera: Tephritidae) was studied in different places of Fars province (South Iran) during year 2013. A total of 15 species representing 13 genera belonging to five tribes and two subfamilies were collected and recognized. The genus *Schistopterum* BECKER, 1903 and two species viz., *S. moebiusi* BECKER, 1903 and *Capitites ramulosa* (LOEW, 1844) are recorded from Iran for the first time. In addition, available information for each species and notes on host plant(s) and geographical distribution are given.

K e y w o r d s : Diptera, distribution, fauna, host plants, Iran, new records, Tephritidae.

Introduction

The Tephritidae is a diverse, cosmopolitan family of flies commonly known as fruit flies. Approximately 4400 described species are distributed worldwide (NORRBOM 2004, NORRBOM & CONDON 2010). The larvae are phytophagous and can be serious pests of agricultural crops. Some species, such as *Ceratitis capitata* (WIEDEMANN, 1824), *Rhagoletis pomonella* (WALSH, 1867), *Bactrocera dorsalis* (HENDEL, 1912), *B. oleae* (GMELIN, 1790), *B. tryoni* (FROGGATT, 1897) and *Anastrepha ludens* (LOEW, 1873), cause damage of several billion US dollars per year (MERZ et al. 2006). However, some of species are known as biological control agents of noxious weeds, especially of various species of Asteraceae (FREIDBERG & KUGLER 1989).

In recent years, some contributions have been done for collecting, identifying the Iranian tephritids and their hosts (e.g. PARCHAMI ARAGHI 1995, GHARALI et al. 2004, 2006, GILASIAN 2007, GILASIAN & MERZ 2008, MOHAMADZADE NAMIN et al. 2010a,b,c, ZARGHANI et al. 2010a,b,c, GHARAJEDAGHI et al. 2011a,b,c, KARIMPOUR 2011, KORNEYEV et al. 2011, MOHAMADZADE NAMIN 2011a,b, MOHAMADZADE NAMIN et al. 2011, MOHAMADZADE NAMIN & NOZARI 2011a,b, FAZEL et al. 2011, GHARAJEDAGHI et al. 2012, KORNEYEV 2013).

Fars province (coordinates 27°-31°N, 50°-55°E) is located in the southern part of the Iran. Fars consists of three completely different regions. (1) The mountain area north and northwest, with moderate cold winters and mild summers, (2) the central region, with relatively rainy mild winters, and hot dry summers, (3) the south and southeast, with moderate winters and very hot summers. Fars with having such climate and geographic diversity is a very interesting area, offers ideal conditions for biodiversity.

The aim of the present study was to provide detailed information on the distribution of thephritid flies species and their hosts in Fars province, and to make an additional contribution to the knowledge of the Iranian fruite flies fauna.

Materials and methods

A portion of the specimens studied were captured by pan and Malaise traps. Also some specimens were collected by swept on flowers head of Asteraceae plants during year 2013. The voucher specimens are deposited in the Department of Entomology, College of Agriculture, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran. The taxonomic arrangement used in this paper was adapted from WHITE & ELSON-HARRIS (1992) and NORRBOM (2004).

Results

In a total of 15 species belonging to the subfamilies Dacinae and Tephritisinae were collected in Fars province. Of these, one genus and two species are reported for the first time for Iranian fauna. The subfamilies, tribes and species are listed in alphabetic order.

Subfamily D a c i n a e

Tribe C e r a t i d i n i

Genus *Ceratitis* MACLEAY, 1829

***Ceratitis capitata* (WIEDEMANN, 1824)**

M a t e r i a l e x a m i n e d : 8♀♀: Fars, Farough, 29°15'N, 53°25'E, 04.x.2013, Malaise trap in Pomegranate garden.

H o s t r e c o r d s f r o m I r a n : Peach, Apricot, Plum, Garden Plum, Pear, Apple, Tomato, Cherry, Quince, Kaki, Grapevine, Pomegranate, Medlar, Fig, Grape, Banana, Tangerine, Mandarin, Citrus and many other fruit trees (DASTGHEYB BEHESHTI 1980, SABZEVARI & JAFARI 1991, BEHDAD 1991, PEZMAN et al. 2011, MODARES AWAL 1994).

H o s t s o u t s i d e I r a n : Larvae in peaches, pears and apples (Rosaceae). Over 250 plant types from more than 40 families (WHITE & ELSON-HARRIS 1992).

D i s t r i b u t i o n i n I r a n : Mazandran, Khorasan, Tehran, Gilan, Markazi, Semnan, Esfahan, Yazd, Kermanshah, Kordestan (DASTGHEYB BEHESHTI 1980, ESMAILI 1983, FISCHER-COLBRIE & BUSCH-PETERSEN 1989, SABZEVARI & JAFARI 1991, BEHDAD 1991, MODARES AWAL 1994, MOHAMADZADE NAMIN et al. 2010c, MIRSARDOO et al. 2010), Fars (FAZEL et al. 2011, PEZMAN et al. 2011).

G e n e r a l d i s t r i b u t i o n : Africa, Atlantic Ocean Islands, Indian ocean Islands, Australia, Pacific Ocean Islands, Europe, Middle East, Central America, South Africa, West Indies (WHITE & ELSON-HARRIS 1992), Tropical Africa, Madagascar,

Mauritius, Reunion, introduced North Africa, South Europe, Middle East, Neotropics, West Australia, Hawaii (NORRBOM et al. 1998), Originally an East African species, introduced with commerce to North Africa, Southern Europe, Near and Middle East, Neotropics, Australia and Hawaii, Yemen (MERZ et al. 2006).

Tribe Dacini

Genus *Bactrocera* MACQUART, 1835

***Bactrocera zonata* (SAUNDERS, 1842)**

Material examined: 1♀: Fars, Larestan, 27°13'N, 54°25'E, 08.v.2013, Malaise trap.
This is a new record for the fauna of Fars province.

Host record from Iran: Mango (BAGHERI et al. 2010).

Hosts outside Iran: Euphorbiaceae, Lecythidaceae, Rhamnaceae, *Prunus persica* L. (Rosaceae), *Annona squamosa* L. (Annonaceae), *Psidium guajava* L. (Myrtaceae), *Mangifera indica* L. (Anacardiaceae), *Momordica charantia* L. (Cucurbitaceae), *Phoenix dactylifera* L. (Arecaceae), *Malus pumila* MILL. (Rosaceae), *Grewia asiatica* L. (Tiliaceae), *Punica granatum* L. (Punicaceae), *Cydonia oblonga* MILL. (Rosaceae), *Terminalia catappa* L. (Combretaceae), *Solanum melongena* L. (Solanaceae), *Aegle marmelos* L. (Rutaceae) (WHITE & ELSON-HARRIS 1992, ALLWOOD et al. 1999).

Distribution in Iran: HORMOZGAN, SISTAN & BALUCHESTAN (GILASIAN 2007, BAGHERI et al. 2010).

General distribution: Indian Ocean, North America, Tropical Asia (WHITE & ELSON-HARRIS 1992), Pakistan and Sri Lanka to Vietnam, Indonesia (Maluku), introduced Mauritius (NORRBOM et al. 1998), North Africa, Arabian Peninsula, Tropical Asia, United Arab Emirates (MERZ 2008).

Genus *Dacus* FABRICIUS, 1805

***Dacus ciliatus* (LOEW, 1862)**

Material examined: 35♀♀; 40♂♂: Fars, Farough, 29°15'N, 53°25'E, 16.ix.2013, Malaise trap in alfalfa field.

Host records from Iran: Cucurbitaceae (Melon, Cantaloupe, Cucumber, Watermelon, Gourd) (SIRJANI & KAMALI 1995, PARCHAMI ARAGHI 1995).

Hosts outside Iran: Asclepiadaceae, Cucurbitaceae, African subgenera have been reared from the fruit or flower buds of Passifloraceae, Apocynaceae and Periplocaceae (ALUJA & NORRBOM 1999), Many species of Cucurbitaceae, wild growing colocynth (WHITE & ELSON-HARRIS 1992), *Citrullus lanatus* THUNB., *Coccinia grandis* L., *Cucumis sativus* L., *Luffa aegyptiaca* MILL., *Momordica charantia* L. (Cucurbitaceae) (ALLWOOD et al. 1999).

Distribution in Iran: Fars, Hormozgan, Khuzestan, Khorasan Razavi, Tehran (PARCHAMI ARAGHI 1995, SIRJANI 1995, SIRJANI & KAMALI 1995, GILASIAN 2007), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a).

General distribution: Africa, Atlantic Islands, Middle East, Saudi

Arabia, Yemen People's Democratic Republic, Yemen Arab Republic, probably in Iran, Oriental (WHITE & ELSON-HARRIS 1992), Senegal East to Somalia, South Africa, Madagascar, introduced Mauritius, Reunion, Israel & Egypt East to Burma (NORRBOM et al. 1998), An Afrotropical species which is also found in the Middle East and South Asia (MERZ et al. 2006).

Subfamily T e p h r i t i n a e

Tribe S c h i s t o p t e r i n i

Genus *S c h i s t o p t e r u m* BECKER, 1903

***Schistopterum moebiusi* BECKER, 1903**

M a t e r i a l e x a m i n e d : 1♀: Fars, Naghsh e Rustam, 29°59'N, 52°25'E, 16.ix.2013, Malaise trap in alfalfa field. **This is a new record and *Schistopterum* is a new genus for the fauna of Iran and Fars province.**

H o s t r e c o r d s f r o m I r a n : Unknown.

H o s t s o u t s i d e I r a n : The larvae develop in flower heads of *Pluchea dioscoridis* (Asteraceae) (FREIDBERG & KUGLER 1989).

G e n e r a l d i s t r i b u t i o n : Afrotropical Region, Near East, Arabian Peninsula, UAE (MERZ, 2008).

Tribe T e p h r i t i n i

Genus *A c a n t h i o p h i l u s* BECKER, 1908

***Acanthiophilus helianthi* (ROSSI, 1794)**

M a t e r i a l e x a m i n e d : 5♀♀; 10♂♂: Fars, Marvdash, 29°52'N, 52°48'E, 10.vi.2013, swept from flower heads of *Centaurea solstitialis* L.; 27♀♀; 49♂♂: Fars, Atabak, 29°46'N, 52°51'E, 01.vii.2013, Malaise trap in alfalfa field.

H o s t r e c o r d s f r o m I r a n : (Safflower) *Carthamus tinctorius* L. (MODARES AWAL 1994, HATAMI et al. 2008, KEYHANIAN 2008, SAEIDI & NUR AZURA 2011a,b, SAEIDI et al. 2011a,b,c,d, SAEIDI et al. 2012); *Carthamus oxyacanthus* M. BIEB., *Centaurea cyanus* L. (Asteraceae) (MOHMMADZADE NAMIN et al. 2010a); *Carthamus lanatus* L. (Asteraceae) (MOHMMADZADE NAMIN et al. 2010c); *Cnicus benedictus* L., *Serratula coriacea* FISCH. & MEY. ex DC., *Serratula coriacea*, *Centaurea behen* L., *Centaurea behen* (Asteraceae) (KARIMPOUR 2011); *Cosmos bipinnatus* CAV., *Centaurea amadanensis* SCH. BIP., *Centaurea nemecii* NBELEK, *Centaurea leuzeoides* JAUB. & SPACH., *Centaurea aucheri* DC., *Jurinea* sp. (Asteraceae) (MOHMMADZADE NAMIN & NOZARI 2011a).

H o s t s o u t s i d e I r a n : The larvae develop in flower heads of various species of *Carthamus*, *Centaurea* and related genera of the family Asteraceae, *Carthamus tinctorius* L., *Centaurea cyanus* L., *C. moschata* [*Amberboa moschata* L.] *Cynara scolymus* L., *Helianthus annuus* L. (FREIDBERG & KUGLER 1989, WHITE & ELSON-HARRIS 1992).

Distribution in Iran: Baluchestan, Khorasan (BECKER 1912), Azerbaijan-e Sharghi, Gorgan, Fars, Esfahan, Ghom (MODARES AWAL 1994, HATAMI et al. 2008, KEYHANIAN 2008), Tehran (MOHAMADZADEH NAMIN et al. 2010c), Ardebil (MOHAMADZADEH NAMIN et al. 2010c), Fars (FAZEL et al. 2011), Kurdistan (MOHMMADZADEH NAMIN & NOZARI 2011a), Azerbaijan-e Gharbi (KARIMPOUR 2011), KOHGILUYE & BUYERAHMAD (SAEIDI & NUR AZURA 2011a,b, SAEIDI et al. 2011b,c,d), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2011a, GHARAJEDAGHI et al. 2012a,b, KHAGHANI NIA et al. 2012, KHAGHANI NIA & GHARAJEDAGHI 2012).

General distribution: Africa (Ethiopia, Kenya, Sudan), Asia (India, Pakistan, Thailand), Atlantic Islands (Madeira), Europe (All Southern countries, plus the United Kingdom) (WHITE & ELSON-HARRIS 1992), Europe, East to Mongolia, South to North, East Africa, Afghanistan, Thailand (NORRBOM et al. 1998).

Genus *Campiglossa* RONDANI, 1870

***Campiglossa producta* (LOEW, 1844)**

Material examined: 2♂♂: Fars, Atabak, 29°46'N, 52°51'E, 01.vii.2013, Malaise trap in alfalfa field.

Host records from Iran: *Picris strigosa* BIEB (Asteraceae) (KARIMPOUR 2011); *Lactuca serriola* L. (Asteraceae) (MOHMMADZADEH NAMIN & NOZARI 2011a). *Sonchus arvensis* L. (Asteraceae) (MOHAMADZADEH NAMIN et al. 2010c).

Hosts outside Iran: *Chondrilla juncea* L., *Crepis* spp., *Leontodon* spp., *Hieracium* spp. (Asteraceae) (MERZ 1994).

Distribution in Iran: Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Fars, Golestan, Khuzestan, Lorestan, Tehran (GILASIAN 2007), Tehran (MOHAMADZADEH NAMIN et al. 2010c), Ardebil (MOHAMADZADEH NAMIN et al. 2010a), Kurdistan (MOHMMADZADEH NAMIN & NOZARI 2011a), Azerbaijan-e Gharbi (KARIMPOUR 2011).

General distribution: Britain, Finland to Mediterranean, Turkey, Central Asia (Norrbom et al. 1998), Europe, Asia Minor, Middle Asia; Near East, Iran, Afghanistan, Iraq (KORNEYEV & DIRLEBEK 2000).

Genus *Capitites* FOOTE & FREIDBERG, 1981

***Capitites ramulosa* (LOEW, 1844)**

Material examined: 1♀: Fars, Olom v Tahghighat, 29°59'N, 52°39'E, 10.iv.2013, Malaise in weed habitat. **This is a new record for the fauna of Iran and Fars province.**

Host records from Iran: Unknown.

Hosts outside Iran: The larvae develop in flower heads of *Phagnalon rupestre* (Asteraceae) (FREIDBERG & KUGLER 1989).

General distribution: Afro-tropical region, Near East, North Africa, Europe (FREIDBERG & KUGLER 1989).

Genus *Goniurellia* HENDEL, 1927

***Goniurellia lacerata* (BECKER, 1913)**

M a t e r i a l e x a m i n e d : 1♂: Fars, Jahrom, 28°50'N, 53°58'E, 30.v.2013, pan trap in citrus garden. **This is a new record for the fauna of Fars province.**

H o s t s o u t s i d e I r a n : Unknown.

D i s t r i b u t i o n i n I r a n : Baluchestan, Kerman (BECKER 1912), Bushehr, Kerman (GILASIAN 2007).

G e n e r a l d i s t r i b u t i o n : Egypt, Iran (NORRBOM et al. 1998), United Arab Emirates (MERZ 2008).

Genus *Sphenella* ROBINEAU-DESVOIDY, 1830

***Sphenella marginata* (FALLÉN, 1814)**

M a t e r i a l e x a m i n e d : 1♀: Fars, Farough, 29°15'N, 53°25'E, 04.x.2013, Malaise trap in peach garden. **This is a new record for the fauna of Fars province.**

H o s t s o u t s i d e I r a n : *Senecio alpinus* L., *S. erucifolius* L., *S. jacobaea* L., *S. rupester* W. & K., *S. viscosus* L., *S. vulgaris* L. (Asteraceae) (MERZ 1994).

D i s t r i b u t i o n i n I r a n : Ardebil (MOHAMADZADE NAMIN et al. 2010a), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2011a, GHARAJEDAGHI et al. 2012a,b, KHAGHANI NIA & GHARAJEDAGHI 2012).

G e n e r a l d i s t r i b u t i o n : North Europe E to W. Siberia, S to Spain, Egypt, Afghanistan (NORRBOM et al. 1998).

Genus *Tephritis* LATREILLE, 1804

***Tephritis divisa* (RONDANI, 1871)**

M a t e r i a l e x a m i n e d : 1♂: Fars, Atabak, 29°46'N, 52°51'E, 16.vii.2013, Malaise trap in alfalfa field. **This is a new record for the fauna of Fars province.**

H o s t s o u t s i d e I r a n : *Picris echiooides* L. (Asteraceae) (MERZ 1994).

D i s t r i b u t i o n i n I r a n : Mazandaran (MOHAMADZADE NAMIN 2011b).

G e n e r a l d i s t r i b u t i o n : Spain, South France, South Switzerland, Italy, Greece (Crete), Israel (NORRBOM et al. 1998), Iran (MOHAMADZADE NAMIN 2011b).

***Tephritis postica* (LOEW, 1844)**

M a t e r i a l e x a m i n e d : 1♂: Fars, Atabak, 29°46'N, 52°51'E, 24.v.2013, swept from flower heads of *Onopordum acanthium* L.

H o s t r e c o r d s f r o m I r a n : *Onopordum acanthium* L., *O. leptolepis* D.C. (Asteraceae) (MOHMMADZADE NAMIN et al. 2010c, KARIMPOUR 2011, MOHMMADZADE NAMIN & NOZARI 2011a).

H o s t s o u t s i d e I r a n : *Onopordum cynarocephalum* BOISS. & BLANCHE. *O. acanthium* L. (Asteraceae) (KUTUK & OZGUR 2003, KUTUK 2006).

Distribution in Iran: Esfahan, Hamadan, Kermanshah, Khorasan-e Razavi, Semnan, Tehran, Zanjan, Azerbaijan-e Sharghi (GILASIAN 2007, MOHAMADZADEH NAMIN et al. 2010c, ZARGHANI et al. 2010a, Gharajedaghi et al. 2011c, GHARAJEDAGHI et al. 2012a,b), Ardebil (MOHAMADZADE NAMIN et al. 2010a), Fars (FAZEL et al. 2011), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a), Azerbaijan-e Gharbi (KARIMPOUR 2011).

General distribution: Europe, Western Asia (FREIDBERG & KUGLER 1989), France, Central Europe, Ukraine, Uzbekistan, South to North Africa, Israel, Iran (NORRBOM et al. 1998).

Genus *Tephritisomyia* HENDEL, 1927

Tephritisomyia lauta (LOEW, 1869)

Material examined: 13♀♀; 21♂♂: Fars, Arsanjan, 29°55'N, 53°18'E, 19.iv.2013, Malaise trap in weed habitat; 53♀♀; 30♂♂: Fars, Marvdash, 29°52'N, 52°48'E, 19.iv.2013, swept from flower heads of *Echinops* sp. This is a new record for the fauna of Fars province.

Hosts outside Iran: *Echinops viscosus* DC. (Asteraceae) (FREIDBERG & KUGLER 1989).

Distribution in Iran: Ardebil (MOHAMADZADE NAMIN et al. 2010a), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2011c, GHARAJEDAGHI et al. 2012a,b).

General distribution: Greece, Israel, Iran, Tunisia, Egypt (NORRBOM et al. 1998).

Genus *Trupanea* SCHRANK, 1975

Trupanea amonea (FRAUENFELD, 1857)

Material examined: 14♀♀; 4♂♂: Fars, Dashtak, 30°17'N, 52°28'E, 06.iv.2013, Malaise trap in weed habitat.

Host record from Iran: *Lactuca serriola* L. (Asteraceae) (MOHMMADZADE NAMIN & NOZARI 2011a).

Hosts outside Iran: It may be locally a pest species on cultivated *Lactuca* and *Calendula* (Asteraceae) (WHITE & ELSON-HARRIS 1992).

Distribution in Iran: Baluchistan, Kerman (BECKER 1912), Tehran (MOHAMADZADEH NAMIN et al. 2010c), Ardebil (MOHAMADZADE NAMIN et al. 2010a), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a), Fars (FAZEL et al. 2011), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2011a, GHARAJEDAGHI et al. 2012a,b, KHAGHANI NIA et al. 2012, KHAGHANI NIA & GHARAJEDAGHI 2012).

General distribution: Widespread, South Palearctic Region, Ethiopia, India, Sri Lanka, Australia (NORRBOM et al. 1998).

Trupanea stellata (FUSSLIN, 1775)

Material examined: 5♀♀; 4♂♂: Fars, Takhte Jamshid, 29°56'N, 52°53'E, 14.iv.2013, swept from flower heads of unknown weeds.

H o s t r e c o r d f r o m I r a n : *Senecio vulgaris* L. (Asteraceae) (MOHMMADZADE NAMIN & NOZARI 2011a).

H o s t s o u t s i d e I r a n : *Senecio* spp., *Artemisia judaica* L., *Inula graveolens* L., *I. viscosa* L., *Anthemis* spp., *Aster* sp., *Bidens* sp., *Centaurea* spp., *Crepis* spp., *Inula* sp., *Picris* sp., *Senecio* sp., *Serratula* sp. (Asteraceae) (FREIDBERG & KUGLER 1989, MERZ 1994).

D i s t r i b u t i o n i n I r a n : Baluchistan, Kerman (BECKER 1912), Tehran (MOHAMADZADEH NAMIN et al. 2010c), Ardebil (MOHAMADZADE NAMIN et al. 2010a), Kurdistan (MOHMMADZADE NAMIN & NOZARI 2011a), Fars (FAZEL et al. 2011), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2011a, GHARAJEDAGHI et al. 2012a,b, KHAGHANI NIA et al. 2012, KHAGHANI NIA & GHARAJEDAGHI 2012).

G e n e r a l d i s t r i b u t i o n : British Is., Scandinavia East to Mongolia, South to North Africa, Middle East, Iran, India (NORRBOM et al. 1998), Palaearctic, Oriental Regions, United Arab Emirates (MERZ 2008).

Tribe *Terelliini*

Genus *Terella* ROBINEAU-DESOVOIDY, 1830

Terella gynaecochroma (HERING, 1937)

M a t e r i a l e x a m i n e d : 2♂♂: Fars, Takht e Jamshid, 29°56'N, 52°53'E, 14.iv.2013, swept from flower heads of unknown weeds; 1♂: Fars, Atabak, 29°46'N, 52°51'E, 14.iv.2013, swept from flower heads of *Onopordum acanthium* L.

H o s t r e c o r d f r o m I r a n : *Onopordum acanthium* L. (Asteraceae) (MOHMMADZADE NAMIN et al. 2010c, KARIMPOUR 2011, MOHMMADZADE NAMIN & NOZARI 2011a). *Onopordum heterocanthum* C.A. Mey (Asteraceae) (MOHMMADZADE NAMIN et al. 2010a, MOHMMADZADE NAMIN & NOZARI 2011b).

H o s t s o u t s i d e I r a n : *Onopordum*, *Cynara* (Asteraceae) (KORNEYEV & DIRLBEK, 2000), *Onopordum anisacanthum* BOISS., *O. illyricum* L.. *O. acanthium* L. (Asteraceae) (KUTUK & VAROL 2006).

D i s t r i b u t i o n i n I r a n : Ardabil, Fars, Qazvin (GILASIAN 2007, MOHAMADZADE NAMIN et al. 2010a), Azerbaijan-e Gharbi (KARIMPOUR 2011), Azerbaijan-e Sharghi (GHARAJEDAGHI et al. 2012a,b, KHAGHANI NIA et al. 2012, KHAGHANI NIA & GHARAJEDAGHI 2012).

G e n e r a l d i s t r i b u t i o n : Central & South Europe, East to Caucasus, South to Cyprus, Israel, Iran (NORRBOM et al. 1998).

Acknowledgements

The authors are grateful to Dr. Dmitry Gavryushin (Russia) and Dr. Saeed Mohamadzade Namin (Iran) for identification and confirmation of specimens. This research was supported by the Department of Entomology, Marvdast Branch, Islamic Azad University, Marvdasht, Iran.

Zusammenfassung

Vorliegende Arbeit behandelt die Tephritidaen-Fauna der Provinz Fars im Süd-Iran. Im Jahr 2013 gelang der Nachweis von 15 Arten aus 13 Gattungen, zugehörig zu 5 Triben und 2 Unterfamilien. Die Gattung *Schistopterum* BECKER, 1903 und zwei Arten, *S. moebiusi* BECKER, 1903 und *Capitites ramulosa* (LOEW, 1844), konnten das erste Mal für den Iran nachgewiesen werden. Zusätzlich enthalten sind Angaben zu den einzelnen Arten und der/den Wirtspflanze(n) sowie die geographische Verbreitung aller untersuchten Arten.

Literature

- ALLWOOD A.J., CHINAJARIYAWONG A., DREW R.A.I., HAMACEK E.L., HANCOCK D.L., HENGSAWAD C., JINAPIN J.C., JIRASURAT M., KONG KRONG C., KRITSANEPAIBOON S., LEONG C.T.S. & S. VIJAYSEGARAN (1999): Host plant records for fruit flies (Diptera: Tephritidae) in South-East Asia. — The Raffles Bulletin of Zoology. Supplement 7, 92 pp.
- ALUIA M. & A.L. NORRBOM (1999): Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior. — CRC Press, Boca Raton, London, New York, Washington, 944 pp.
- BAGHERI A., KALYAEI R. & M. ASKARI (2010): Evaluation of different application methods of methyl eugynol in mango fruit fly control. — Proceedings of the 19th Iranian Plant Protection Congress, Iranian Research Institute of Plant Protection, Iran 2: 272.
- BECKER S. (1912): Persische Dipteren von den Expeditionen des Herrn N. Zarudny 1898 und 1901. — Ezhegodnik Zoologicheskogo Muzeya Rossiyskoy Akademii Nauk 17: 503-654.
- BEHDAD E. (1991): Pests of Fruit Crop in Iran. — Second Edition, Neshat Publishing, Esfahan, Iran, 822 pp.
- DASTGHEYB BEHESHTI N. (1980): Insect pests of cold region fruit trees of Esfahan. — Plant Pests and Diseases Research Institute, Esfahan, 145 pp.
- ESMAILI M. (1983): The Important Pest of Fruit Trees. — Sepehr Publishing, Tehran, Iran, 578pp.
- FAZEL M.A., FALLAHZADEH M. & M. GHEIBI (2011): Introduction to the Fruit Flies fauna (Diptera, Tephritidae) of Fars province, Iran. — Linzer biologische Beiträge 43 (2): 1229-1235.
- FISCHER-COLBRIE P. & E. BUSCH-PETERSEN (1989): Pest status; temperate Europe and west Asia. — In: ROBINSON A.S & G. HOOPER (eds), World Crop Pests 3 (A). Fruit flies; their biology, natural enemies and control. Elsevier, Amsterdam, Netherlands, pp. 91-99.
- REIDBERG A. & J. KUGLER (1989): Fauna Palaestina Insecta IV. Diptera: Tephritidae. — Israel at Keterpress Enterprises, Jerusalem, 212 pp.
- GHARAJEDAGHI Y., KHAGHANI NIA S. & R. FARSHBAF PURABAD (2012a): An investigation of the fruit flies (Diptera: Tephritidae) fauna in Ajabshir region (East Azerbaijan Province) with the new record from Iran (Part 1). — Munis Entomology & Zoology 7 (1): 617-625.
- GHARAJEDAGHI Y., KHAGHANI NIA S. & R. FARSHBAF PURABAD (2012b): Investigation of the fruit flies (Diptera: Tephritidae) fauna in Ajabshir region (East Azerbaijan Province) with the new record from Iran (Part 2). — Munis Entomology & Zoology 7 (2): 935-945.
- GHARAJEDAGHI Y., KHAGHANI NIA S. & S. MOHAMADZADE NAMIN (2011a): Flies of the tribe Tephritisini (Diptera: Tephritidae) from Ajabshir Region (East Azerbaijan Province), with New Records for Iranian fauna. — Ukrainska Entomofaunistyka 2 (6): 15-18.
- GHARAJEDAGHI Y., KHAGHANI NIA S., FARSHBAF PURABAD R. & M. KUTUK (2011b): Study of the genus *Urophora* ROBINEAU-DESOVIDY, 1830 (Diptera: Tephritidae) in Ecebsir region with two species as new records for Iran. — Munis Entomology & Zoology 6 (1): 358-362.

- GHARAJEDAGHI Y., KHAGHANI NIA S., FARSHBAF PURABAD R. & E. ZARGHANI (2011c): Identification of Fruit flies Genus *Tephritis* LATREILLE, 1804 (Diptera: Tephritidae) on Ajabshir Region (Azerbaijan Sharghi Province). — Journal of Plant Protection **25** (3): 325-328.
- GHARALI B., MERZ B. & A. JOZIAN (2004): The first report of *Urophora mauritanica* MACQUART from Iran. — Journal of Entomological Society of Iran **24**: (1): 131.
- GHARALI B., MERZ B. & H. LOTFALIZADEH (2006): The first report of *Urophora impicta* (HERING 1942) (Diptera; Tephritidae) from Iran. — Proceedings of the 18th Iranian Plant Protection Congress, Faculty of Agriculture, University of Bu-Ali Sina, Hamedan, Iran, 1-96.
- GILASIAN E. (2007): The List of Diptera in the Hayk Mirzayans insect Museum of Iranian Research Institute of Plant Protection, Diptera (XXVIII): Tephritidae. — Iranian Research Institute of Plant Protection, Insect Taxonomy Research Department, Publication No. **15**: 23 pp.
- GILASIAN E. & B. MERZ (2008): The first report of three genera and fifteen species of Tephritidae (Diptera) from Iran. — Journal of Entomological Society of Iran **27** (2): 11-14.
- HATAMI B., KHAJEHALI J. & M.R. SABZALIAN (2008): The effect of drought stress on population density and damage of safflower fly (*Acanthiophilus helianthi*), aphid (*Uroleucon carthami*) and leafhopper *Empoasca decipiens*. — Journal of Science and Technology of Agriculture and Natural Resources **45** (B): 699-710.
- KARIMPOUR Y. (2011): Fruit flies (Dipt.: Tephritidae) reared from capitula of Asteraceae in the Urmia region, Iran. — Journal of Entomological Society of Iran **30** (2): 53-66.
- KEYHANIAN A. (2008): Seasonal abundance of the safflower fly, *Acanthiophilus helianthi* ROSSI (Diptera: Tephritidae), and its infestation on safflower, *Carthamus tinctorius* L. in Ghom province. — Pajouhesh & Sazandegi **78**: 57-62.
- KHAGHANI NIA S. & Y. GHARAJEDAGHI (2012): Faunistic study of the fruit flies (Diptera: Tephritidae) of Kandovan valley with a new record for Iran. — Munis Entomology & Zoology **7** (2): 950-956.
- KHAGHANI NIA S., GHARAJEDAGHI Y., ZARGHANI E. & R. FARSHBAF PURABAD (2012): Some of the fruit flies fauna of Chichekli region with a new report for Iran (Diptera: Tephritidae). — Munis Entomology & Zoology **7** (1): 526-535.
- KHAGHANI NIA S., ZARGHANI E., MOHAMADZADE NAMIN S. & V.A. KORNEYEV (2011): A new species of *Tephritis* LATREILLE (Diptera: Tephritidae) with an unusual wing pattern from Iran and its taxonomic implications. — Zootaxa **3047**: 54-62.
- KORNEYEV S.V. (2013): Revision of species of the genus *Tephritis* LATREILLE 1804 (Diptera: Tephritidae) with entire apical spot. — Zootaxa **3620** (1): 67-88.
- KORNEYEV V.A., GHARALI B. & H. RAKHSHANI (2011): A Review of the Genus *Hyperdium* LOEW, 1862 (Diptera: Tephritidae). — Ukrainska Entomofaunistyka **2** (4): 39-46.
- KORNEYEV V.A. & J. DIRLBEK (2000): The Fruit Flies (Diptera: Tephritidae) of Syria, Jordan and Iraq. — Studia dipterologica **7** (2): 463-482.
- KUTUK M. & A.F. OZGUR (2003): Faunistical and systematical studies on the genus *Tephritis* LATREILLE, 1804 (Diptera: Tephritidae) in the south-west of Turkey along with new records. — *Türkiye Entomoloji Dernegi & Dergisi* **27**: 243-252.
- KUTUK M. & M.I. VAROL (2006): Records of two species of *Terellia* ROBINEAU-DESVOIDY, 1830 (Diptera: Tephritidae) new to the Turkish fauna. — Turkish Journal of Zoology **30**: 99-102.
- MERZ B. (1994): Insecta Helvetica Fauna 10. Herausgegeben von der Schweizerischen Entomologischen Gesellschaft. Diptera Tephritidae. — Geneve, 198 pp.
- MERZ B. (2008): Order Diptera, Family Tephritidae. — In: van HARTEN A. (ed.), Arthropod fauna of the UAE, Abu Dhabi: Dar Al Ummah Printing **1**: 643-661.

- MERZ B., AARTSEN B.V., WHITE I.M. & A.V. HARTEN (2006): Fruit flies (Diptera: Tephritidae) of Yemen. — Fauna of Arabia **21**: 365-382.
- MIRSARDOO S., MAFI-PASHAKOLAEI S.A. & H. BARARI (2010): Preliminary investigation on the geographical distribution of Mediterranean fruit fly, *Ceratitis capitata* (WIEDEMANN) (Dip., Tephritidae), in Mazandaran province, Iran. — Journal of Entomological Research **2** (2): 143-154.
- MODARES AWAL M. (1994): List of agriculture pests and their natural enemies in Iran. — Ferdowsi University Press, 364 pp.
- MOHAMADZADE NAMIN S. (2011a): A new species of *Tephritis* LATREILLE (Diptera: Tephritidae) from Iran. — Entomologica Fennica **22**: 284-288.
- MOHAMADZADE NAMIN S. (2011b): New data on the fruit flies (Diptera: Tephritidae) in the fauna of Iran. — Ukrainska Entomofaunistyka **2** (5): 31-35.
- MOHAMADZADE NAMIN S. & J. NOZARI (2011a): The fruit flies (Diptera: Tephritidae) in Kurdistan Province, with New Records for Iranian Fauna. — Ukrainska Entomofaunistyka **2** (4): 47-53.
- MOHAMADZADE NAMIN S. & J. NOZARI (2011b): A new species of *Urophora* ROBINEAU-DESOUDIY, 1830 (Diptera, Tephritidae) from Iran. ZooKeys **152**: 63-70.
- MOHAMADZADE NAMIN S., NOZARI J. & A. NAJARPOUR (2010a): The Fruit Flies (Diptera: Tephritidae) in the Fauna of Ardabil Province, with New Records for Iran. — Ukrainska Entomofaunistyka **1** (3): 35-41.
- MOHAMADZADE NAMIN S., NOZARI J. & G.R. RASOULIAN (2010b): The first report of *Goniurellia persignata* FREIDBERG, 1980 (Diptera: Tephritidae) from Iran. — Proceedings of the 19th Iranian Plant Protection Congress, Iranian Research Institute of Plant Protection, Iran **1**: 138.
- MOHAMADZADE NAMIN S., NOZARI J. & G.H. RASOULIAN (2010c): The fruit flies (Diptera, Tephritidae) in Tehran province, with new records for Iranian fauna. — Vestnik Zoologii, **44** (1): 20-31.
- MOHAMADZADE NAMIN S., NOZARI J. & A. NAJARPUR (2011). A new species of *Terellia* (Diptera: Tephritidae) from Iran with a key to the species of the *Tarbinskiorum* group. — Zootaxa **2750**: 65-68.
- NORRBOM A.L. (2004): Fruit Fly (Diptera: Tephritidae) Taxonomy Pages. — Available on: <http://www.sel.barc.usda.gov/diptera/tephriti/tephriti.htm> (Accessed: 19 September 2014).
- NORRBOM A.L., CARROLL L.E., THOMPSON F.C., WHITE I.M. & A. FREIDBERG (1998): Systematic Database of Names. — In: THOMPSON F.C. (ed.), Fruit Fly Expert Identification System and Systematic Information Database, *Myia*, pp. 65-299.
- NORRBOM A.L. & M. CONDON (2010): Revision of the *femoralis* group of *Blepharoneura* LOEW (Diptera: Tephritidae). — Zootaxa **2374**: 1-139.
- PEZHMAN H., OSTOVAN H., KAMALI K. & V.A. REZAI (2011): Evaluation of various traps and attractants for trapping the Mediterranean fruit fly, *Ceratitis capitata* (Diptera: Tephritidae), in a mixed-fruit orchard in Shiraz (Fars province). — Applied Entomology & Phytopathology **78** (2): 217-236.
- PARCHAMI ARAGHI M. (1995): Introduce of *Dacus ciliatus* LOEW (Diptera: Tephritidae) from Iran. — Proceedings of the 12th Iranian Plant Protection Congress, Karaj Junior College of Agriculture, Iran, 160 pp.
- SABZEVARI A. & M.E. JAFARI (1991): Bio-ecological studies and eradication of the pest in Mazandaran "The last infested area in Iran". — Bulletin of Plants Pest and Diseases Research Institute, 38 pp.
- SAEIDI K. & A. NUR AZURA (2011a): A survey on pest insect fauna of safflower fields in the Iranian Province of Kohgiloyeh and Boyerahmad. — African Journal of Agricultural Research **6** (19): 4441-4446.

- SAEIDI K. & A. NUR AZURA (2011b): Efficiency of Methyl eugenol as attractant for *Acanthiophilus helianthi* Rossi, 1794 (Diptera: Tephritidae). — International Research Journal of Agricultural Science and Soil Science **1** (10): 412-416.
- SAEIDI K., NUR AZURA A., OMAR D. & F. ABOOD (2011d): Comparison of different methods to control fruit fly *Acanthiophilus helianthi* Rossi (Diptera: Tephritidae) in Iran. — Australian Journal of Basic and Applied Sciences **5** (7): 1162-1165.
- SAEIDI K., NUR AZURA A., OMAR D. & F. ABOOD (2011b): Efficacy of various insecticides on safflower fly, *Acanthiophilus helianthi* Rossi (Diptera: Tephritidae) in Kohgiloyeh and Boyerahmad Province (Iran). — Australian Journal of Basic and Applied Sciences **5** (12): 2660-2664.
- SAEIDI K., NUR AZURA A., OMAR D. & F. ABOOD (2011c): Pests of safflower (*Carthamus tinctorious* L.) and their natural enemies in Gachsaran, Iran. — South Asian Journal of Experimental Biology **1** (6): 286-291.
- SAEIDI K., NUR AZURA A., DZOLKHIFLI O. & F. ABOOD (2011a): Study of Some Biological Aspects and Development of Integrated Pest Management Program for the Safflower Fly, *Acanthiophilus helianthi* Rossi (Diptera: Tephritidae) in Iran. — Journal of Research in Agricultural Science **7** (1): 1-16.
- SAEIDI K., NUR AZURA A., OMAR D. & F. ABOOD (2012): Development of integrated pest management techniques: Insect pest management on Safflower. — African Journal of Agricultural Research **7** (12): 1880-1888.
- SIRJANI M. & K. KAMALI (1995): Survey of cucurbitaceous fruit flies and identification of dominant species in Kashmar. — Proceedings of the 12th Iranian Plant Protection Congress, Karaj Junior College of Agriculture, Iran, p. 155.
- WHITE I.M. & M.M. ELSON-HARRIS (1992): Fruit flies of economic significance: their identification and bionomics. — CAB International, London, 601 pp.
- ZARGHANI E., KHAGHANI NIA S., FARSHBAF POUR ABAD R. & B. GHARALI (2010a): Synopsis of the genus *Tephritis* LATREILLE (Diptera: Tephritidae) in Iran. — Munis Entomology & Zoology **5**, suppl.: 1176-1181.
- ZARGHANI E., KHAGHANI NIA S., FARSHBAF POUR ABAD R. & B. GHARALI (2010b): Two genera and five species as new records for fruit flies fauna of Iran from East Azarbaijan Province. — Munis Entomology & Zoology **5** (2): 823-824.
- ZARGHANI E., KHAGHANI NIA S., KORNEYEV V.A., KUTUK M., FARSHBAF POURABAD R., GHARALI B. & Y. GHARAJEDAGHI (2010c): New Records of Fruit Flies from Iran (Diptera: Tephritidae). — Munis Entomology & Zoology **5**, Suppl.: 1202-1204.

Authors' addresses:

Zohreh SOLTANIZADEH
Department of Entomology,
Fars Science and Research Branch,
Islamic Azad University,
Fars, Iran
and
Department of Entomology,
Marvdasht Branch, Islamic Azad University,
Marvdasht, Iran
E-mail: z_s13666@yahoo.com

Dr. Nazila SAGHAEI (Corresponding author)
Department of Entomology,
Marvdasht Branch, Islamic Azad University,
Marvdasht, Iran
E-mail: nazila_saghaei@yahoo.com

Dr. Hadi OSTOVAN
Department of Entomology,
Shiraz Branch, Islamic Azad University,
Shiraz, Iran
E-mail: ostovan2001@yahoo.com

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Linzer biologische Beiträge](#)

Jahr/Year: 2015

Band/Volume: [0047_1](#)

Autor(en)/Author(s): Soltanizadeh Zohreh, Saghaei Nazila, Ostovan Hadi

Artikel/Article: [A Contribution to the Fauna of Fruit Flies \(Diptera, Tephritidae\) in Fars Province, Southern Iran 925-937](#)